

I. REMARKS

Claims 1-4 are all the claims pending in the application.

Claims 1-4 are rejected under 35 U.S.C. §112, first paragraph, as being unenabled.

Claims 1-3 are rejected under 35 U.S.C. §102(e) as being anticipated by Marks, (6203758).

The Applicant traverse the rejections and requests reconsideration.

A. *Section 112 rejections*

The Examiner contends in general that a CCD (charge coupled device) is a type of detector used in conjunction with an apparatus and further that a CCD is not used in the art to directly detect molecular species. Further the Examiner contends that the specification describes the structure of a FET sensor having CCD Detection. However, the Examiner alleges, it is not clearly stated how the molecular recognition layer and electrodes are incorporated into the FET sensor and further where CCD detection occurs in the apparatus.

The Applicant respectfully submits that the Examiner is believed to be characterizing the invention in ways that are completely not related to what is described in the specification. Further, the Examiner is believed to be implying claim interpretations unintended by the Applicant.

The specification clearly traces the construction of the apparatus in very great detail. CCD is simply any device that stores charges in a depletion region (potential well). In CCD detection devices, the charges correspond to proportional quantities of other parameters like light. In a chemical CCD the charge is proportional to the quantity of a detected chemical. The specification clearly describes the structure of a chemical CCD with reference to Figs. 7 and 8

(Specification 4:22-5:17). Further, the principle of how the chemical CCD is used to measure a quantity of a chemical and how the charges stored are transferred to a corresponding signal which is then measured using a signal processing machine is described with reference to Fig. 9 (Specification 6:18-8:14).

The Examiner asks where the molecular recognition layer are incorporated into the FET sensor. The Applicant respectfully submits that in the entire specification there is no mention of an FET. Therefore, the Applicant is at a loss as to how the Examiner's specific query can be reasonably answered. In regards to the location of the molecular recognition layer, with reference to Fig. 1, the molecular recognition layer 21 is on the surface of the sensor face 6a of the chemical CCD (Specification 12-15).

Further the Examiner inquires where the CCD detection occurs. Again, with reference to Figs. 1-4, the specification clearly discusses how the inventive device is operated (specification 11:18-12:22).

The Applicant attaches an article, *Novel CCD-based pH Imaging Sensor*, IEEE Transactions on Electronic Devices, Vol. 46, No. 9, September 1999, that includes a general description of chemical CCDs in general for the Examiner's reference.

B. Rejection of claims 1-3 under 35 U.S.C. § 102(e) over Mark

In rejecting the claims, the Examiner contends that Marks teaches a molecular recognition layer over the sensor using molecular imprinting techniques for DNA which measures a substance by change in capacitance having CCD detection. However, the claims require a chemical CCD. There is no teaching anywhere in Marks about a chemical CCD. The only reference to CCD deals with CCD cameras (mark 5:10, 19:13-15, 19:53-58). There is no

disclosure (or suggestion related to a chemical CCD as used in the claimed invention. The present invention, as recited in claim 1, requires a chemical CCD having a plurality of potential wells constituted to change a depth corresponding to a chemical quantity.

To anticipate a claim, every element and its associated limitations must be disclosed in the cited reference. Mark does not anticipate claims 1-3, at least because it does not disclose (or even remotely suggest) a chemical CCD. Therefore claims 1-3 must be allowed.

II. CONCLUSION

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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